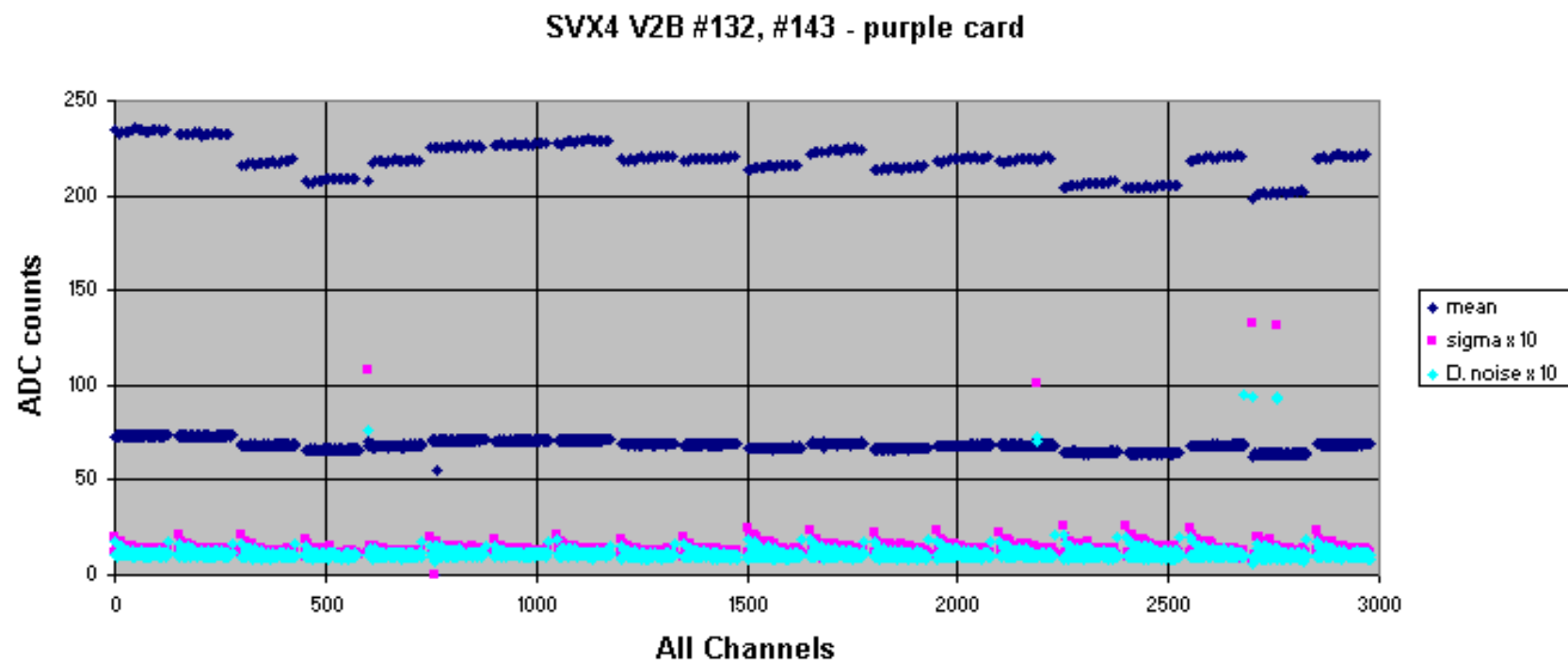


Revision 2 of full chain readout

new Junction Card, Twisted Pair Cable, Adapter Card:

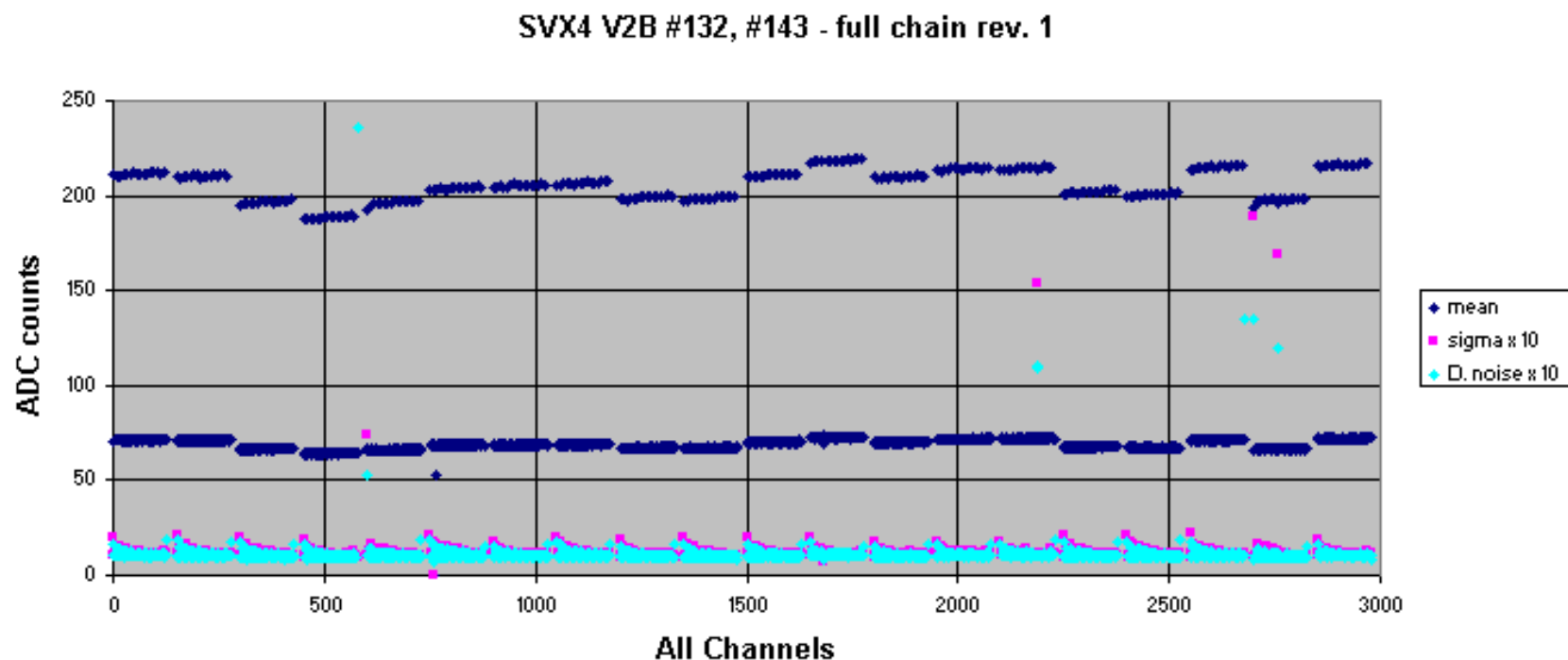
- **Junction Card:**
TP cable with connectors, new geometry
- **TP cable:** thinner, more flexible, connectors on both ends, singled ended lines with two wires each
- **Adapter Card:** power provided through 80c cable, all four channels powered separately, smaller, $AVDD + DVDD \rightarrow VDD$ (1 regulator per channel)

performance comparison: purple card readout



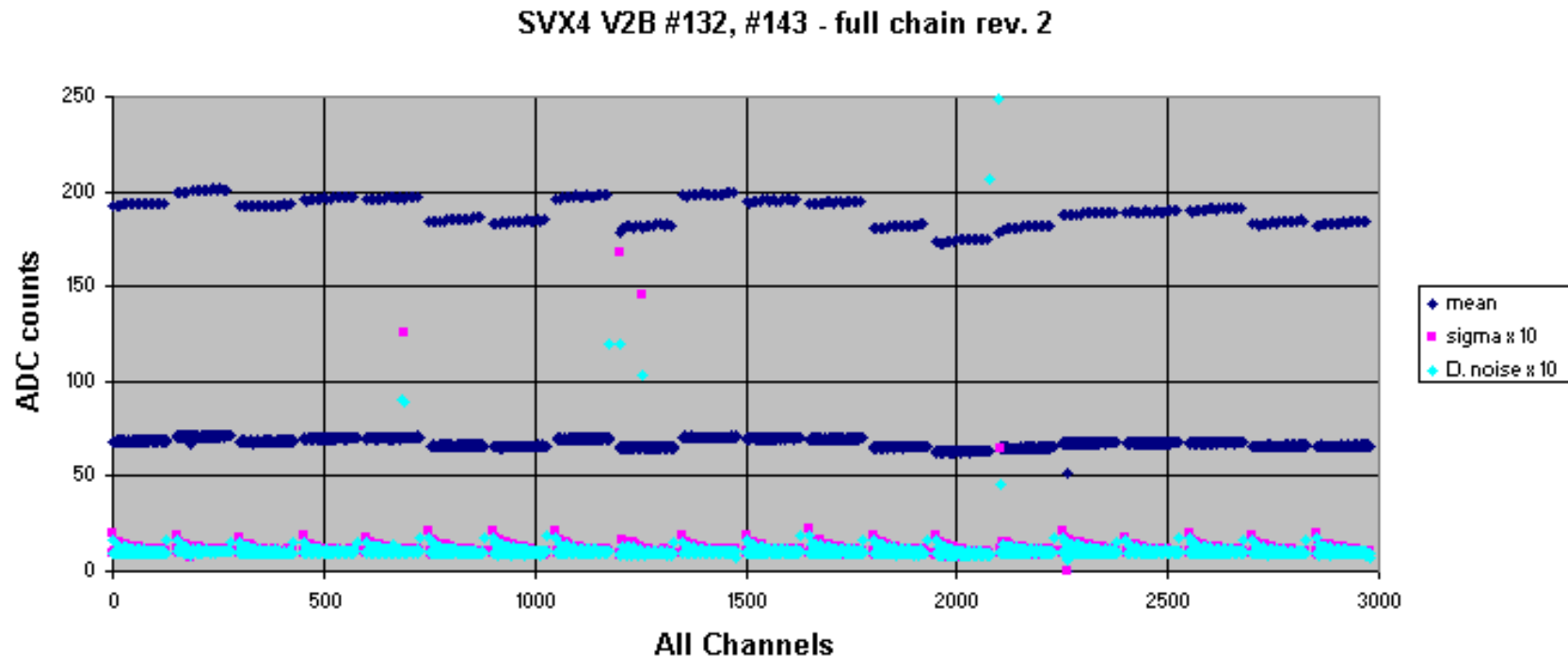
2 10-chip hybrids with SVX4 V2B

performance comparison: full chain revision 1



adapter card was modified to \approx rev. 2 schematics

performance comparison: full chain revision 2



➤ 5 million events without a single error!
(no DMA, 50 Hz readout rate)

differences in handling rev. 2 chains

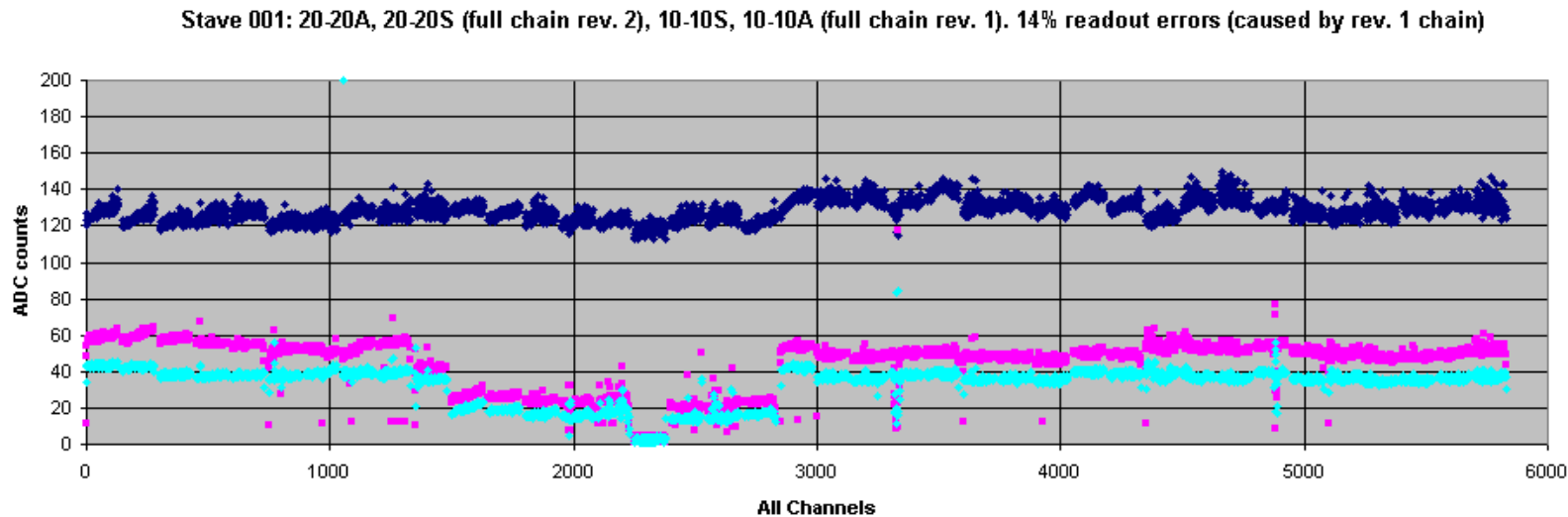
- can **switch on/off** each adapter card channel separately
- simultaneous **download** of several chains
much more reliable!
- **caution:** through-hole connectors → don't use
new junction card on conductive surface!
- even being close to conductive surface has
strong effect on noise performance

perfect application for revision 2 chain:

THE STAVE

...if we only already had a second rev. 2 junction card...

Full chain readout of first electrical stave



mixed revision 2 and revision 1 full chain

sensors not biased

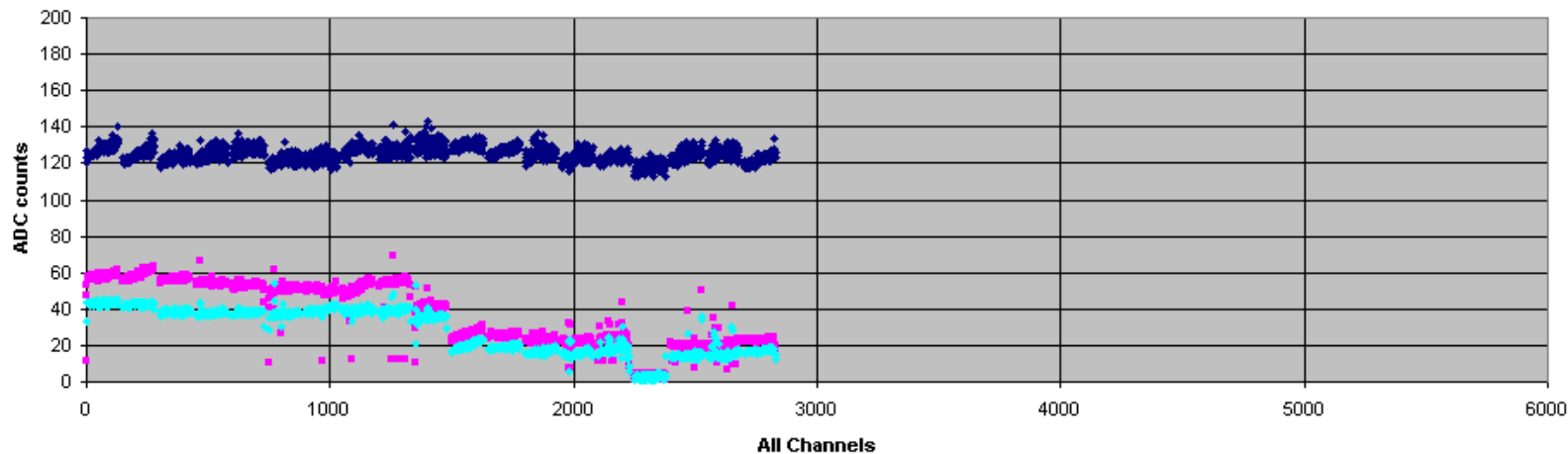
cooling system

→ hybrid temperatures below 30°C during readout

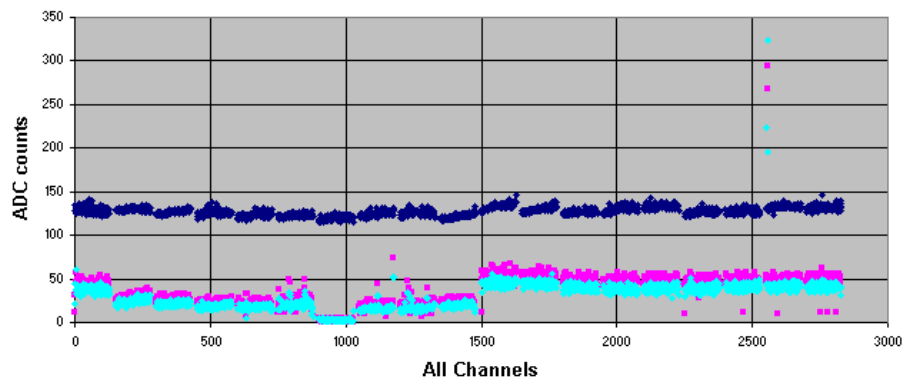
readout errors in rev. 1 chains. not module-related!

Full chain readout of first electrical stave: studies

Stave 001: 20-20A, 20-20S (full chain rev. 2, on), 10-10S, 10-10A (full chain rev. 1, on, but no readout). 0 errors in 10k events

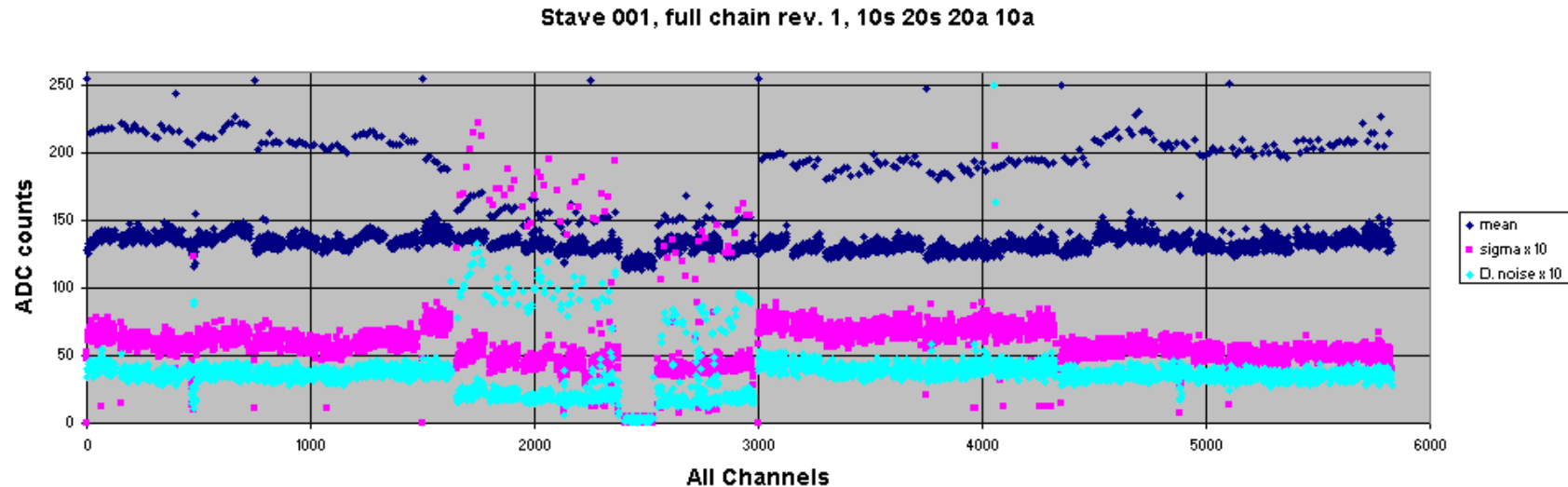


both 20-20 modules, full chain



top: 4 chains connected,
read out only rev. 2
→ error-free
left: disconnect rev. 1
chains → noise improves

Full chain readout of first electrical stave: studies



Full chain readout with four revision 1 channels
One twisted pair cable seems to be broken

Conclusion

- Revision 2 of full chain readout = **success!**
 (“plug and play”)
- Second Rev. 2 Junction Card expected soon
 → 4 channels available
- Electrical stove: **all modules operational!**
- Noise depends on grounding, shielding, cable positions
 → could need some optimization

Thanks to all who worked on this!